PCL-728

2-CHANNEL D/A CARD

USER'S MANUAL

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TABLE OF CONTENTS

CHAPTER 1. INTRODUCTION 1
1.1. Initial Inspection 1
1.2. Specifications 1

CHAPTER 2. SWITCHES, JUMPERS, AND CONNECTORS . . . 5
2.1. I/O Address Selection 5
2.2. Jumper Settings 6
2.2.1. Reference Source Selection 7
2.2.2. Voltage Output Selection 8
2.2.3. Current Sink Range Selection 10
2.3. Connectors CN1 and CN2 11

CHAPTER 3. REGISTER STRUCTURE AND FORMAT 13
3.1. I/O Address Map 13
3.2. Data Format 13
3.2.1. BASE+0 High Byte Data 14
3.2.2. BASE+1 Low Byte Data 14
3.2.3. BASE+2 High Byte Data 15
3.2.4. BASE+3 Low Byte Data 15
3.3. Unipolar and Bipolar Binary Code Tables 16
3.4. Programming Examples 17

CHAPTER 4. SIGNAL CONNECTIONS 19
4.1. Voltage Output Connection 19
4.2. 4 to 20mA and 0 to 20mA Current Sink Connections 20

APPENDIX A. CALIBRATION 23

CHAPTER 1. INTRODUCTION

The PCL-728 is an isolated 12 bit dual-channel analog output (D/A) card designed for applications run in harsh environments. Each channel is fully isolated, and independent from the system's ground, and can be set to the following output ranges: 0 to 5V, 0 to 10V, ±5V, ±10V, 4 to 20mA, and 0 to 20mA (current sink). After you turn on or reset your PC, each channel will also resets to 0V in unipolar or bipolar modes.

The PCL-728 comes equipped with two D-9 pin female connector for output signal wiring applications.

1.1. Initial Inspection

Before proceeding any further, please examine the contents of this package to ensure that the following items have been shipped:

- 1 PCL-728 2-Channel D/A Card
- 1 User's Manual
- 1 utility diskette

The PCL-728 has been thoroughly inspected and tested before it was shipped, and should be in perfect electronic order. If the card is damaged or appears to be defective, contact your local PC-LabCard dealer immediately.

1.2. Specifications

Device:	AD7541KN or equivalent.
Channels:	2.
Resolution:	12 bits.
Linearity:	±½ LSB.
Accuracy:	±0.012% full scale range.
Temperature drift:	5 PPM/°C (0 to 50°C).

Isolation voltage: ≥500 Vdc.

Output range: 0 to +5V (unipolar).
-5V to +5V (bipolar).
0 to +10V (unipolar).
-10V to + 10V (bipolar).
0 to 20mA current loop (sink).
4 to 20mA current loop (sink).

Reference voltage: Internal: -5V, and -10V.
External: DC or AC, ±10V (max.).

Output drive current: ±5mA (max.).

Current loop excitation voltage: +8V (min.), 36V (max.) for 4 to 20mA and 0 to 20mA current loop.

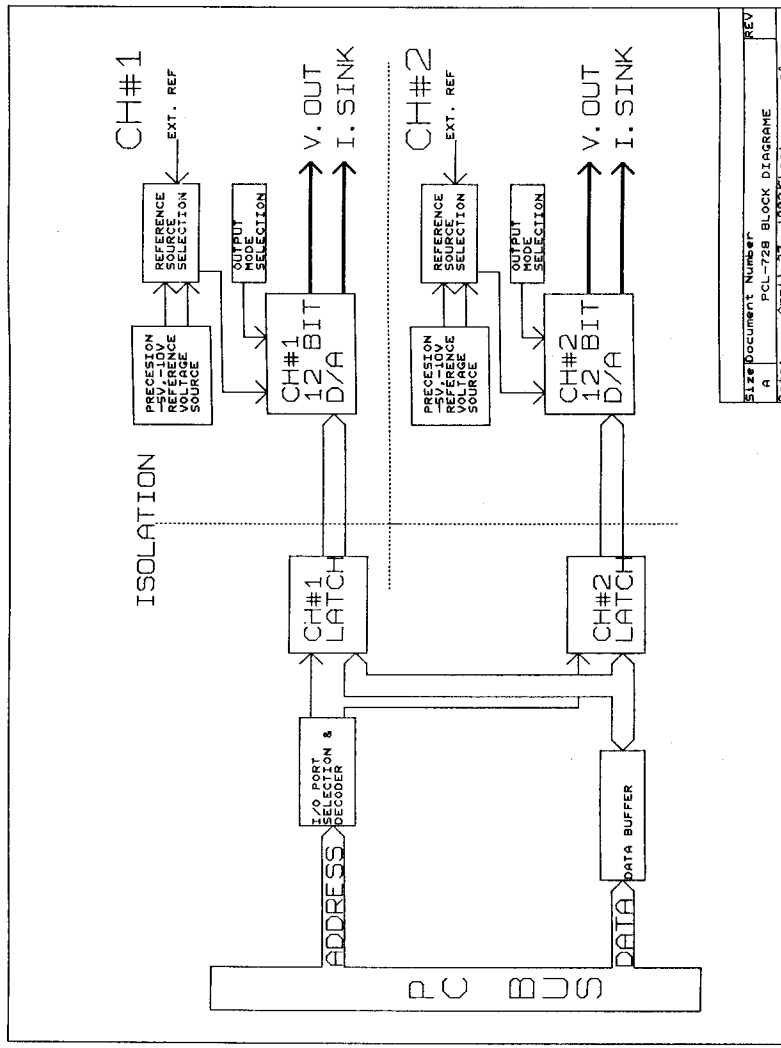
Settling time: ≤60μs.

Power consumption: +5V @ 800mA (max.).

Operating temperature: 0 to 50°C (-32 to 122°F).

Storage temperature: -20 to 65°C (-68 to 149°F).

Dimensions: 184mm x 119mm.



PCL-728 Block Diagram

CHAPTER 2. SWITCHES, JUMPERS, AND CONNECTORS

The PCL-728 uses ten sets of jumper pins (five sets for each channel) to configure its reference source, voltage output, and current sink range selections to your applications requirements. It also uses an 8-position DIP switch for selecting an appropriate I/O address for its firmware to occupy. The following sections offer the necessary information for setting the PCL-728's jumpers and DIP switch positions.

2.1. I/O Address Selection

Selecting an appropriate I/O address for your PCL-728 to occupy is important because it avoids any conflicts that could occur if another add-on card occupies the same I/O space. DIP switch, SW1, should be set to a valid I/O address between 200 to 3F8 (hexadecimal). The following table outlines the various addresses you may choose from according to each position on SW1.

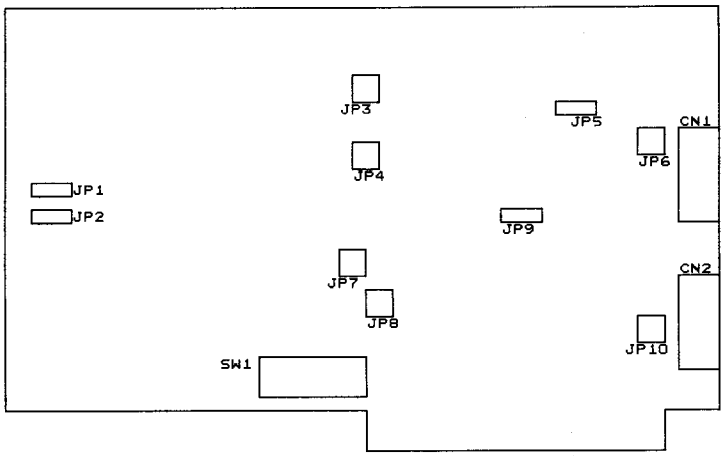
I/O Address Range (Hex)	Switch Position							
	1	2	3	4	5	6	7	8
	A9	A8	A7	A6	A5	A4	A3	X
200-207	OFF	ON	ON	ON	ON	ON	ON	X
210-21F	OFF	ON	ON	ON	ON	OFF	ON	X
.								
.								
2C0-2CF*	OFF	ON	OFF	OFF	ON	ON	ON	X
300-30F	OFF	OFF	ON	ON	ON	ON	ON	X

Key:

X = Non specific
A9 through A3 correspond to your PC's address lines
* Factory default

2.2. Jumper Settings

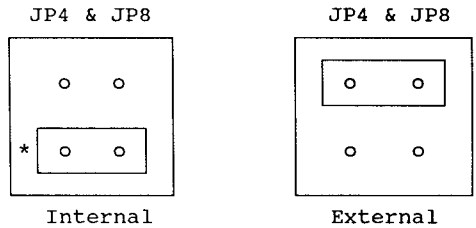
Jumpers, JP1 through JP10 (see illustration below), are used to set the reference source, voltage output, and current sink range selections on board the PCL-728. The following sections will provide you with the necessary information for setting these jumpers.



Jumper Locations

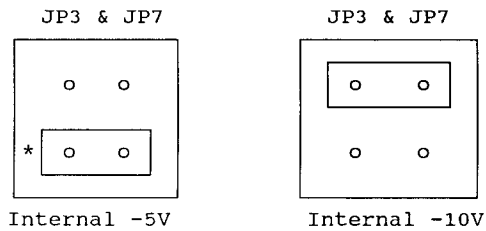
2.2.1. Reference Source Selection

Before setting the PCL-728's reference source, you must decide which type of source, internal or external (JP4 for Channel 1, and JP8 for Channel 2), you want to use with your application. External reference voltages may be selected for AC or DC sources. the maximum external reference voltage is ±10V, and the maximum D/A output range is ±10V. See the illustration below:



* Factory default

A fixed, precision internal -5 and -10V reference is provided by the PCL-728. Setting Channels 1 and 2's internal reference source is accomplished by closing JP3 (for Channel 1), and JP7 (for Channel 2). The internal reference source can be set to -10V or -5V. The following illustration pertains to both of these jumpers.



* Factory default

2.2.2. Voltage Output Selection

Jumpers, JP1 and JP5 (for Channel 1), and JP2 and JP9 (for Channel 2), are all used to select each channel's voltage output as either unipolar or bipolar. The following illustration shows the voltage output selection for both channels.

UNIPOLAR OUTPUT

BIPOLAR OUTPUT

* Factory default